

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-3. (Canceled)

4. (Currently Amended) ~~A fuel cell system as claimed in claim 2,~~ A fuel cell system having a fuel cell generating section comprising at least one fuel cell for generating electric power by an electrochemical reaction between a fuel gas containing hydrogen and an oxidizing gas containing oxygen, fuel gas supply means for supplying a flow of fuel gas to said fuel cell generating section and oxidizing gas supply means for supplying a flow of oxidizing gas to said fuel cell generating section, wherein said system comprises:

a controllable electric power source;

control means for

controlling a moisture content condition within said fuel cell generating section by adjusting said value of electric current generated by said fuel cell generating section,

detecting a first condition whereby a value of total electric power generated by said system exceeds a required value and a second condition whereby said total value of electric power is less than said required value, and

reducing an amount of electric power generated by said controllable electric power source when said first condition is detected and for increasing said amount of electric power generated by said controllable electric power source when said second condition is detected; and

moisture diagnosis means for diagnosing said moisture content condition of said fuel cell generating section, wherein said control means performs control of said value of

electric current based upon diagnosis results obtained by said moisture diagnosis means,

wherein said control means performs control to supply a part of said electric power generated by said fuel cell generating section to be stored in said electrical energy storage device when said first condition is detected and to obtain electric power from said electrical energy storage device, to supplement said electric power generated by said fuel cell generating section, when said second condition is detected, and

wherein said control means comprises means for judging, based on said diagnosis results, whether a value of moisture content within said fuel cell generating section is below a predetermined lower limit, and for applying control to increase said value of electric current generated by said fuel cell generating section when said moisture content value is found to be below said lower limit.

5. (Original) A fuel cell system as claimed in claim 4, wherein said control to increase said value of electric current generated by said fuel cell generating section is applied until said moisture content value is within a predetermined range of values.

6. (Canceled)

7. (Original) A fuel cell system as claimed in claim 4, wherein said control to decrease said value of electric current generated by said fuel cell generating section is applied until said moisture content value is within a predetermined range of values.

8. (Currently Amended) ~~A fuel cell system as claimed in claim 2,~~ A fuel cell system having a fuel cell generating section comprising at least one fuel cell for generating electric power by an electrochemical reaction between a fuel gas containing hydrogen and an oxidizing gas containing oxygen, fuel gas supply means for supplying a flow of fuel gas to said fuel cell generating section and oxidizing gas supply means for supplying a flow of oxidizing gas to said fuel cell generating section, wherein said system comprises:

a controllable electric power source;

control means for

controlling a moisture content condition within said fuel cell generating section by adjusting said value of electric current generated by said fuel cell generating section,

detecting a first condition whereby a value of total electric power generated by said system exceeds a required value and a second condition whereby said total value of electric power is less than said required value, and

reducing an amount of electric power generated by said controllable electric power source when said first condition is detected and for increasing said amount of electric power generated by said controllable electric power source when said second condition is detected;

moisture diagnosis means for diagnosing said moisture content condition of said fuel cell generating section, wherein said control means performs control of said value of electric current based upon diagnosis results obtained by said moisture diagnosis means; and

~~comprising~~ memory means having stored therein data expressing a plurality of characteristics corresponding to respectively different values of moisture content of said fuel cell generating section, each said characteristic expressing a relationship between values of electric current generated by said fuel cell generating section and corresponding values of electric power generated by said fuel cell generating section,

wherein said control means comprises means for reading out from said memory means a characteristic that is selected as corresponding to a moisture content value derived based on said diagnosis results,

when a specified value of electric current is to be generated by said fuel cell generating section, applying said specified value of electric current to obtain a corresponding

value of electric power from said selected characteristic, as a value of electric power that is to be generated by said fuel cell generating section, and

when a specified value of electric power is to be generated by said fuel cell generating section, applying said specified value of electric power to obtain a corresponding value of electric current from said selected characteristic, as a value of electric current that is to be generated by said fuel cell generating section.

9. ~~A fuel cell system as claimed in claim 1,~~ A fuel cell system having a fuel cell generating section comprising at least one fuel cell for generating electric power by an electrochemical reaction between a fuel gas containing hydrogen and an oxidizing gas containing oxygen, fuel gas supply means for supplying a flow of fuel gas to said fuel cell generating section and oxidizing gas supply means for supplying a flow of oxidizing gas to said fuel cell generating section, wherein said system comprises:

a controllable electric power source;

control means for

controlling a moisture content condition within said fuel cell generating section by adjusting said value of electric current generated by said fuel cell generating section,

detecting a first condition whereby a value of total electric power generated by said system exceeds a required value and a second condition whereby said total value of electric power is less than said required value, and

reducing an amount of electric power generated by said controllable electric power source when said first condition is detected and for increasing said amount of electric power generated by said controllable electric power source when said second condition is detected; and

~~comprising~~ a plurality of fuel cell generating sections each comprising at least one fuel cell, fuel gas supply means for supplying a flow of fuel gas to each of said fuel cell generating sections, and oxidizing gas supply means for supplying a flow of oxidizing gas to each of said fuel cell generating sections,

wherein said system comprises moisture diagnosis means for diagnosing respective moisture content conditions of said fuel cell generating sections, and said control means ~~comprises~~ comprises:

means for judging results obtained by said moisture diagnosis means to determine a one of said fuel cell generating sections having a lowest value of moisture content, judging whether said lowest value of moisture content is below a predetermined lower limit value, and when said moisture content value is found to be below said lower limit value, increasing a value of electric current generated by said fuel cell generating section having the lowest value of moisture content, until said moisture content value is within a predetermined range of ~~values~~, values;

means for judging results obtained by said moisture diagnosis means, to determine a one of said fuel cell generating sections having a highest value of moisture content, judging whether said highest value of moisture content exceeds a predetermined upper limit value, and when said moisture content value is found to exceed said upper limit value, applying control to decrease a value of electric current generated by said fuel cell generating section having the highest value of moisture content, until said moisture content value is within said predetermined range of ~~values~~, values; and

means operating, when said control is applied to increase or decrease a value of electric current generated by one of said fuel cell generating sections, to alter a value of electric current generated by at least one other of said fuel cell generating sections in a

direction such as to adjust said total value of electric power towards said required value of electric power.

10-13. (Canceled)

14. (Currently Amended) ~~A fuel cell system as claimed in claim 13,~~ A fuel cell system having a fuel cell generating section comprising at least one fuel cell for generating electric power by an electrochemical reaction between a fuel gas containing hydrogen and an oxidizing gas containing oxygen, control means for controlling a value of electric current generated by said fuel cell generating section, fuel gas supply means for supplying a flow of fuel gas to said fuel cell generating section and oxidizing gas supply means for supplying a flow of oxidizing gas to said fuel cell generating section, wherein

said system comprises electrical energy storage means, and

said control means comprises:

means for controlling a moisture content condition within said fuel cell generating section by adjusting said value of electric current generated by said fuel cell generating section,

means for detecting a first condition whereby said electric power generated by said fuel cell generating section exceeds a required value of electric power and a second condition whereby said electric power generated by said fuel cell generating section is less than said required value of electric power, and

means for applying a part of said electric power generated by said fuel cell generating section to be stored in said electrical energy storage means when said first condition is detected and for obtaining electric power from said electrical energy storage means to supplement said electric power generated by said fuel cell generating section when said second condition is detected;

moisture diagnosis means for diagnosing said moisture content condition of said fuel cell generating section, and wherein said control means performs control of said value of electric current based upon diagnosis results obtained from diagnosing said moisture content condition; and

wherein said control means comprises means for judging, based on said diagnosis results, whether a value of moisture content within said fuel cell generating section is below a predetermined lower limit, and for applying control to increase said value of electric current generated by said fuel cell generating section when said moisture content values is found to be below said lower limit.

15. (Original) A fuel cell system as claimed in claim 14, wherein said control to increase said value of electric current generated by said fuel cell generating section is applied until said moisture content value is within a predetermined range of values.

16-17. (Canceled)

18. (Currently Amended) ~~A fuel cell system as claimed in claim 13,~~ A fuel cell system having a fuel cell generating section comprising at least one fuel cell for generating electric power by an electrochemical reaction between a fuel gas containing hydrogen and an oxidizing gas containing oxygen, control means for controlling a value of electric current generated by said fuel cell generating section, fuel gas supply means for supplying a flow of fuel gas to said fuel cell generating section and oxidizing gas supply means for supplying a flow of oxidizing gas to said fuel cell generating section, wherein

said system comprises electrical energy storage means, and

said control means comprises:

means for controlling a moisture content condition within said fuel cell generating section by adjusting said value of electric current generated by said fuel cell generating section,

means for detecting a first condition whereby said electric power generated by said fuel cell generating section exceeds a required value of electric power and a second condition whereby said electric power generated by said fuel cell generating section is less than said required value of electric power, and

means for applying a part of said electric power generated by said fuel cell generating section to be stored in said electrical energy storage means when said first condition is detected and for obtaining electric power from said electrical energy storage means to supplement said electric power generated by said fuel cell generating section when said second condition is detected;

moisture diagnosis means for diagnosing said moisture content condition of said fuel cell generating section, and wherein said control means performs control of said value of electric current based upon diagnosis results obtained from diagnosing said moisture content condition; and

~~comprising~~-memory means having stored therein data expressing a plurality of characteristics corresponding to respectively different values of moisture content of said fuel cell generating section, each said characteristic expressing a relationship between values of electric current generated by said fuel cell generating section and corresponding values of electric power generated by said fuel cell generating section,

wherein said control means comprises means for reading out from said memory means a characteristic that is selected as corresponding to a moisture content value derived based on said diagnosis results,

when a specified value of electric current is to be generated by said fuel cell generating section, applying said specified value of electric current to obtain a corresponding value of electric power from said selected characteristic, as a value of electric power that is to be generated by said fuel cell generating section, and

when a specified value of electric power is to be generated by said fuel cell generating section, applying said specified value of electric power to obtain a corresponding value of electric current from said selected characteristic, as a value of electric current that is to be generated by said fuel cell generating section.

19. (Original) A fuel cell system having a plurality of fuel cell generating sections each comprising at least one fuel cell for generating electric power by an electrochemical reaction between a fuel gas containing hydrogen and an oxidizing gas containing oxygen, control means for mutually separately controlling respective values of electric current generated by said fuel cell generating sections, fuel gas supply means for supplying a flow of fuel gas to said fuel cell generating sections, oxidizing gas supply means for supplying a flow of oxidizing gas to said fuel cell generating sections,

wherein said system comprises moisture diagnosis means for diagnosing respective moisture content conditions of said fuel cell generating sections, and

said control means comprises

means for judging results obtained by said moisture diagnosis means to determine a one of said fuel cell generating sections having a lowest value of moisture content, judging whether said lowest value of moisture content is below a predetermined lower limit value, and when said moisture content value is found to be below said lower limit value, applying control to increase a value of electric current generated by said fuel cell generating section having the lowest value of moisture content, until said moisture content value is within a predetermined range of values,

judging results obtained by said moisture diagnosis means, to determine a one of said fuel cell generating sections having a highest value of moisture content, judging whether said highest value of moisture content exceeds a predetermined upper limit value, and when said moisture content value is found to exceed said upper limit value, applying

control to decrease a value of electric current generated by said fuel cell generating section having the highest value of moisture content, until said moisture content value is within said predetermined range of values, and

when said control is applied to increase or decrease a value of electric current generated by one of said fuel cell generating sections, altering a value of electric current generated by at least one other of said fuel cell generating sections in a direction such as to adjust a total value of electric power generated by said plurality of fuel cell generating sections towards a required value.

20. (Original) A fuel cell system as claimed in claim 19, comprising memory means having stored therein data expressing a plurality of characteristics corresponding to respectively different values of moisture content of a fuel cell generating section, each said characteristic expressing a relationship between values of electric current generated by a fuel cell generating section and corresponding values of electric power generated by said fuel cell generating section,

wherein said control means comprises means for

reading out from said memory means a characteristic that is selected as corresponding to a moisture content value derived based on diagnosis results obtained for a fuel cell generating section,

when a specified value of electric current is to be generated by said fuel cell generating section, applying said specified value of electric current to obtain a corresponding value of electric power from said selected characteristic, as a value of electric power that is to be generated by said fuel cell generating section, and

when a specified value of electric power is to be generated by said fuel cell generating section, applying said specified value of electric power to obtain a corresponding

value of electric current from said selected characteristic, as a value of electric current that is to be generated by said fuel cell generating section.

21-23. (Canceled)